Effects of Socioeconomic Status and Acculturation on Accelerometer-Measured Moderate-to-Vigorous Physical Activity Among Mexican American Adolescents: Findings From NHANES 2003–2004

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Background: Socioeconomic status (SES) and acculturation are potential contributors of adolescent physical activity disparity among ethnic groups in the U.S. However, studies relying on self-report physical activity measures have reported inconsistent findings regarding sociocultural predictors of physical activity. Therefore, the current study examined the main and interactive effects of SES and acculturation on accelerometer-measured moderate-to-vigorous intensity physical activity (MVPA) among Mexican American adolescents. Methods: The National Health and Nutrition Examination Survey 2003–2004 was analyzed. Samples of 153 and 169 Mexican American boys and girls, respectively, were analyzed. SES was indicated by poverty-to-income ratio (PIR); and acculturation was measured by 5-item English preference scales and adolescent and parental country of birth. Regression models were tested separately for boys and girls. Results: U.S.-born boys compared with immigrants did more MVPA (β = .48, P < .01). On the contrary, the effect of English preference on MVPA in boys was negative (β = –.05, P < .01) and amplified by higher SES (β = –.02, P < .01). For girls, none of the tested variables were significant. Conclusions: Higher SES was a risk factor for physical inactivity in Mexican American adolescents, by a moderating mechanism. In addition, physical activity promotion efforts need to consider English speaking and immigrant Mexican American adolescent boys as a target population.

Keywords: exercise, sociocultural, youth

Physical activity participation during adolescence is important for the prevention of various chronic diseases occurring in adulthood, as well as disease risk factors in childhood.\textsuperscript{1–5} Yet, the majority of adolescents in the U.S. do not meet the recommended level of physical activity to gain health benefits (ie, 60 minutes of daily moderate-intensity physical activity).\textsuperscript{6} Moreover, age-related declines in physical activity are the steepest during adolescence among all age groups.\textsuperscript{7}

Researchers have been interested in ethnic minority membership status and low SES as factors that may intensify the physical inactivity trends observed among adolescents. Albeit not conclusive, in the reviews of the empirical studies from 1970–2005 using subjective measures of physical activity, van der Horst et al\textsuperscript{8} and Sallis, Prochaska, and Taylor\textsuperscript{9} found that ethnic minority adolescents were generally less physically active and spent more time in sedentary behaviors compared with white adolescents. Even though the association between SES and physical activity is well-documented for adults,\textsuperscript{10} Hanson and Chen\textsuperscript{11} found that the association is weaker in adolescents. Nevertheless, studies found that adolescents with lower socioeconomic status were generally less likely to achieve sufficient amounts of physical activity.\textsuperscript{8,9,11}

Cultural influence has been identified as a possible explanation for disparities in health behavior and outcomes across ethnic groups, independent of SES. Specifically, acculturation has generally been found to be positively associated with leisure-time physical activity participation in Hispanic adults.\textsuperscript{12–19} However, the findings are inconsistent in children and adolescents. For example, Hispanic immigrant children were more likely to be physically inactive than their U.S.-born white and Hispanic counterparts,\textsuperscript{20,21} and English-speaking Hispanic children were more likely to engage in leisure-time physical activity more so than their Spanish-speaking counterparts in some empirical studies.\textsuperscript{20,22} On the contrary, Unger and colleagues\textsuperscript{23} identified acculturation to the U.S. as a risk factor of leisure-time physical inactivity among Hispanic adolescents. Such inconsistencies in research findings may be at least partially attributable to different types of physical activity measures employed. In addition, Springer and colleagues\textsuperscript{22} found that the association between language use (ie, Spanish vs. English) and
physical activity was different in boys and girls. Therefore, studies should consider using less biased measures of physical activity and gender differences.

The type of physical activity measure is a source of variability in studies of physical activity. Subjective measures of physical activity, such as self-report questionnaires, are widely used in many population-based surveys because they are easy to administer and they are the least burdensome for participants. They also may capture some unique forms of physical activity relative to other methods. Nevertheless, they are vulnerable to 1) recall and social desirability biases, 2) misinterpretation of definitions and intensity levels of physical activity, and, consequently, 3) overestimation of physical activity level.25,26

For example, when the physical activity recommendation adherence rates are objectively measured, the inactivity trend is more severe than what self-report measures have shown. For example, when measured by self-report, 34.7% of high school students met the physical activity recommendation for physical activity in the 2007 Youth Risk Behavior Surveillance System,6 and approximately 51% among all age groups spanning children, adolescents, and adults in the National Health and Nutrition Examination Survey (NHANES) 2003–2004.27 By contrast, the accelerometer-measured physical activity trends were even more discouraging. Specifically, adherence rates to the physical activity recommendation in the NHANES 2003–2004 were at best 11.9%, and 10.0% among the 12–15 and 16–19 year-old age groups, respectively.27

In addition, objective measures of physical activity can capture not only leisure-time physical activity, but also nonleisure-time physical activity such as occupational, transportational, and household activities. Empirical studies generally reported that Hispanic adults’ acculturation are inversely related to nonleisure-time physical activity,26–30 but positively associated with leisure-time physical activity.19,29,30 Also, Marquez and McAuley28 reported that the explained variance in objectively measured total physical activity by nonleisure-time physical activity (5%) was as large as leisure-time physical activity (5%), in Hispanic samples. Therefore, even though there is no study testing the effects of acculturation on both leisure-time and nonleisure-time physical activity in Mexican American adolescents, studies should consider the possibility that increased leisure-time physical activity may offset decreased amount of nonleisure-time physical activity. In sum, capturing an array of physical activity is important in studies testing the association between acculturation and physical activity.

Meanwhile, researchers have argued the need for considering SES in research on the effects of acculturation on health and health behaviors.31–33 That is because 1) SES may be confounded with acculturation, and 2) an ethnic group’s culture may be different for subgroups in different socioeconomic situations. Therefore, studies should consider the interactive effects of SES and acculturation on health behaviors or outcome relationships. If a negative interactive effect between SES and acculturation exists, it would have important implications for the understanding of the Hispanic paradox, which is the phenomenon whereby the health outcomes and mortality rates of Hispanics are better than their relatively lower SES would predict. Empirical findings from Hispanic adults at least partially support this assertion. For example, immigrant Hispanics showed substantially lower mortality rates compared with their U.S.-born Hispanic and non-Hispanic counterparts.34 Also, compared with U.S.-born whites, U.S.-born Hispanics and Hispanic immigrants have significantly lower mortality rates, and Hispanic immigrants have lower mortality rates than their U.S.-born counterparts.35 These results imply that retention of cultural heritage, as indicated by country of birth, may serve as a protective factor for health disparities among Hispanics. Nevertheless, there is no study testing the interactive effects of SES and acculturation on accelerometer-measured MVPA in Mexican American adolescents.

To address these major limitations in the research literature, the purpose of this study was to examine 1) the effects of SES and acculturation, and 2) the interaction between SES and acculturation on accelerometer-measured MVPA using a nationally representative sample of Mexican American adolescents.

Methods

Data Source

This study used the NHANES 2003–2004, a continuous annual interview and physical examination released every 2 years. The participants of NHANES are representative samples of the noninstitutionalized U.S. civilian population, selected by complex, multistage, probability sampling design.36 Using handheld computers, trained interviewers conducted in-home interviews. The physical examinations were performed in Mobile Examination Centers approximately 1 to 2 weeks after the in-home interviews. If necessary, follow-up questionnaires were completed using Computer-Assisted Telephone Interviews. An objective physical activity monitor (accelerometer) component was included in this survey cycle, along with sociodemographic and other variables. Participants 6 years of age and older were eligible for the physical activity monitoring component.

Participants

A total number of 619 (308 boys, 311 girls) Mexican American adolescents (Rangeage = 13–19, Meanage = 15.94, SDage = 2.01) participated in the NHANES 2003–2004. Of those, accelerometers were distributed to 524 adolescents (boys = 265, girls = 259), and of those 352 (boys = 170, girls = 182) returned valid individual accelerometer data. Using a listwise deletion method for missing values, 322 (boys = 153, girls = 169) participants who completed all the questionnaire and examination components were included in the regression analyses.
Measures

**MVPA.** Participants’ physical activity levels over 7 days were objectively measured using accelerometers (ActiGraph AM-7164), programmed to record intensity of movement over 1-minute epochs. Data reduction was performed with SAS version 9.2 (SAS Institute Inc., Cary, NC), and the SAS code provided by the National Cancer Institute. Specifically, the number of minutes with intensity counts equal to or above age-group-specific thresholds were considered time spent in MVPA. A valid day was defined as 10 or more hours of wearing an accelerometer. To represent habitual physical activity behavior, and as recommended, valid individual data were defined as records of 4 or more valid days. Each individual’s average time spent per day in MVPA from valid individual data were analyzed in this study.

**SES.** SES was indicated by poverty-to-income ratio (PIR), defined as “the ratio of family or unrelated individual income to their appropriate poverty threshold,” ranging from 0–5. For example, a PIR of .5 indicates the family income is 50% below the poverty threshold, whereas 2.00 indicates the family is 200% above the poverty threshold.

**Acculturation.** Three items about country of birth and a composite score of 5 English preference items were included as proxy measures of acculturation. Specifically, country of birth of the respondent herself/himself, father, and mother were dichotomized. Five English preference items were assessed on a 5-point scale (“only Spanish” to “only English”). They were:

1. “In general, what language(s) do you read and speak?”
2. “What was the language(s) you used as a child?”
3. “What language(s) do you usually speak at home?”
4. “In what language(s) do you usually think?”
5. “What language(s) do you usually speak with your friends?”

Cronbach’s alpha calculated from this study’s sample was .93, indicating excellent internal consistency.

Data Analysis

Statistical analyses were performed using Stata version 11.1 (StataCorp, College Station, TX). Recalculated sample weights for the subsamples with 4 or more days of valid accelerometer data were used to make the selected samples nationally representative. Descriptive statistics of samples and population estimates were calculated. Adjusted Wald tests were used to test mean difference in selected variables by gender and country of birth. Multiple regression analyses separately for boys and girls were performed to test the effects of SES and acculturation on MVPA. Participants’ age and body mass index (BMI) were included as covariates in the analyses. An alpha of 0.05 was used to establish statistical significance.

Results

Descriptive Statistics

Descriptive characteristics of the Mexican American adolescents by gender are presented in Table 2. In particular, Mexican adolescent boys were more physically active than were girls in the population, $F(1) = 40.32, P < .001$. None of other tested variables were significantly different by gender. Pairwise comparisons of age, BMI, PIR, and English preference by country of birth are presented in Table 3. Specifically, U.S.-born boys’ BMI were significantly higher than immigrant boys, $F(1) = 4.72, P < .05$. In addition, U.S.-born boys’ and girls’ PIR and English preference scores were higher than immigrant boys and girls. Univariate normality was checked, and MVPA scores were log-transformed [ln(MVPA+1)] to relieve severe nonnormality of data before performing multivariate regression analyses. As a result, the skewness and kurtosis of the MVPA variable decreased to –.28 and 2.40 for boys, and –.36 and 2.97 for girls, respectively.

Multivariate Regression Analyses

**Boys’ Model.** For boys, the proportion of variance explained by the multiple regression model was 13.01%, $F(8) = 3.41, P < .001$. Holding other covariates constant,
Table 2  Ranges in Samples of NHANES 2003–2004, Estimations of Population Means, Standard Errors, and Percentages, and Difference Tests by Gender for Mexican American Adolescents

<table>
<thead>
<tr>
<th>Variable</th>
<th>Boys</th>
<th>Girls</th>
<th>Difference tests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ± SE</td>
<td>Range</td>
<td>Mean ± SE</td>
</tr>
<tr>
<td>MVPA (minutes)</td>
<td>44.61 ± 2.87</td>
<td>5.17–177.25</td>
<td>25.20 ± 1.56</td>
</tr>
<tr>
<td>Log (MVPA+1)</td>
<td>3.55 ± .06</td>
<td>1.97–5.18</td>
<td>2.98 ± .06</td>
</tr>
<tr>
<td>Age</td>
<td>15.68 ± .17</td>
<td>13–19</td>
<td>15.46 ± .17</td>
</tr>
<tr>
<td>BMI</td>
<td>23.21 ± .40</td>
<td>14.31–44.15</td>
<td>23.53 ± .47</td>
</tr>
<tr>
<td>PIR</td>
<td>1.68 ± .11</td>
<td>0–5</td>
<td>1.73 ± .11</td>
</tr>
<tr>
<td>English preference</td>
<td>16.99 ± .59</td>
<td>1–25</td>
<td>17.20 ± .49</td>
</tr>
<tr>
<td>Born in the US</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adolescent</td>
<td>67%</td>
<td>73%</td>
<td>χ²(1) = 1.61</td>
</tr>
<tr>
<td>Father</td>
<td>34%</td>
<td>32%</td>
<td>χ²(1) = .11</td>
</tr>
<tr>
<td>Mother</td>
<td>37%</td>
<td>38%</td>
<td>χ²(1) = .01</td>
</tr>
</tbody>
</table>

Abbreviations: BMI, body mass index; PIR, poverty-to-income ratio; MVPA, moderate-to-vigorous intensity physical activity; SE, standard error.

Table 3  Population Estimation of Age, BMI, PIR, and English Preference, Difference Tests (Adjusted Wald Tests) by Country of Birth (Mean ± Standard Error of Estimation)

<table>
<thead>
<tr>
<th></th>
<th>Adolescent</th>
<th>Father</th>
<th>Mother</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>16.17±.31</td>
<td>15.43±.19*</td>
<td>15.86±.20</td>
</tr>
<tr>
<td>Girls</td>
<td>15.99±.33</td>
<td>15.27±.19</td>
<td>15.52±.20</td>
</tr>
<tr>
<td>BMI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>22.10±.56</td>
<td>23.77±.53*</td>
<td>23.55±.50</td>
</tr>
<tr>
<td>Girls</td>
<td>23.56±.98</td>
<td>23.52±.54</td>
<td>23.70±.59</td>
</tr>
<tr>
<td>PIR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>1.33±.18</td>
<td>1.85±.13*</td>
<td>1.47±.12</td>
</tr>
<tr>
<td>Girls</td>
<td>1.10±.13</td>
<td>1.96±.14***</td>
<td>1.49±.13</td>
</tr>
<tr>
<td>Eng</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>9.67±.74</td>
<td>20.64±.45***</td>
<td>13.08±.61</td>
</tr>
<tr>
<td>Girls</td>
<td>10.76±.59</td>
<td>19.54±.46***</td>
<td>13.89±.49</td>
</tr>
</tbody>
</table>

Abbreviations: BMI, body mass index; PIR, poverty-to-income ratio; Eng, English preference.

*B P < .05; **P < .01; ***P < .001.

BMI was inversely related to MVPA (β = −.03, P < .01). While English preference was inversely associated with MVPA (β = −.05, P < .01), U.S.-born boys did more MVPA compared with immigrant boys (β = .48, P < .01). Even though the main effect of PIR was not significant (β = .02, P = .71), it moderated the effect of English preference, (β = −.02, P < .05). Lastly, the effects of age, mother’s country of birth, and father’s country of birth were not significant (Table 4).

In terms of percent change in the predicted MVPA minutes, 1 unit higher BMI was associated with a 3% decrease in boys’ MVPA minutes (e⁻.03 − 1 = −.03). Second, considering the significant moderation effect, 1 point higher on English preference was associated with a 7% (e⁻.05(−.02) − 1 = −.07) and a 3% decrease in MVPA minutes (e⁻.05(−.02) − 1 = −.03) when the PIR was 1 point above and below the sample mean, respectively. The log-transformed changes in boys’ MVPA predicted by English preference and PIR are also graphically presented in Figure 1.

Girls’ Model. For girls, the tested model explained only 6% of the MVPA variance, and the model was not statistically significant, F(8) = .87, P = .54. In addition, none of the tested independent variables were significantly associated with girls’ MVPA.
Table 4  Regression Models for Boys and Girls

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Boys (n = 153)</th>
<th></th>
<th></th>
<th>Girls (n = 169)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \beta )</td>
<td>SE</td>
<td>( t )</td>
<td>( F(8,341) = 3.41^{***}, R^2 = .13 )</td>
<td>( \beta )</td>
<td>SE</td>
</tr>
<tr>
<td>Age</td>
<td>.01</td>
<td>.03</td>
<td>.38</td>
<td>( -0.01 )</td>
<td>.03</td>
<td>.31</td>
</tr>
<tr>
<td>BMI</td>
<td>-.03</td>
<td>.01</td>
<td>-.29**</td>
<td>( -0.01 )</td>
<td>.01</td>
<td>.11</td>
</tr>
<tr>
<td>PIR</td>
<td>.02</td>
<td>.05</td>
<td>.38</td>
<td>( -0.12 )</td>
<td>.08</td>
<td>.15</td>
</tr>
<tr>
<td>English preference</td>
<td>-.05</td>
<td>.02</td>
<td>-.32**</td>
<td>( 0.02 )</td>
<td>.02</td>
<td>1.26</td>
</tr>
<tr>
<td>Born in US</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adolescent</td>
<td>.48</td>
<td>.15</td>
<td>3.15**</td>
<td>( -0.23 )</td>
<td>.15</td>
<td>1.50</td>
</tr>
<tr>
<td>Father</td>
<td>.28</td>
<td>.17</td>
<td>1.69</td>
<td>( -0.18 )</td>
<td>.20</td>
<td>.91</td>
</tr>
<tr>
<td>Mother</td>
<td>.05</td>
<td>.18</td>
<td>0.27</td>
<td>( 0.08 )</td>
<td>.21</td>
<td>.38</td>
</tr>
<tr>
<td>PIR ( \times ) English preference</td>
<td>-.02</td>
<td>.01</td>
<td>-.24**</td>
<td>.02</td>
<td>.01</td>
<td>1.29</td>
</tr>
<tr>
<td>Intercept</td>
<td>3.83</td>
<td>.49</td>
<td>7.85***</td>
<td>3.57</td>
<td>.50</td>
<td>7.17**</td>
</tr>
</tbody>
</table>

Abbreviations: BMI, body mass index; PIR, poverty-to-income ratio; Eng, English preference.
* \( P < .05; ** P < .01; *** P < .001. \)

Figure 1 — English preference predicting ln (MVPA+1), moderated by PIR. Note. Adolescent’s country of birth = 1; mother’s country of birth = 0; father’s country of birth = 0; age and BMI were held constant at mean.

Discussion

Effect of SES on MVPA

In this study, SES as indicated by PIR was not significantly associated with MVPA for either male or female Mexican American adolescents, after controlling for age and BMI. This finding is not consistent with van der Horst’s and Sallis et al’s conclusion that SES is largely positively associated with physical activity. Nevertheless, it corresponds with Hanson and Chen’s finding that the effect of SES is weaker in adolescents compared with adults. In addition to the findings of Hanson and Chen, and although not a direct comparison, our null SES findings are similar to other studies that have shown that parental support for child physical activity, which has consistently shown to positively influence child activity behavior, does not always differ among parents of low and high SES.44
A uniqueness of the current study compared with the empirical studies included in van der Horst\textsuperscript{8} and Sallis et al’s\textsuperscript{9} literature review was the manner in which physical activity was measured (ie, objective vs. subjective). Therefore, the discrepancy in measurement may at least partially account for the differences observed. For example, the accelerometer is not effective for measuring certain types of activities such as swimming, weight training, and biking, and self-report methods are open to item interpretation, social desirability bias, etc. Therefore, where feasible, future studies in which combined physical activity measures are used may help elucidate these apparent commingled findings.

**Effect of Acculturation on MVPA**

Acculturation was measured by English preference and country of birth. Both English preference and country of birth had significant effects on boys’ MVPA, albeit in opposing directions. Neither acculturation variable was significantly associated with girls’ MVPA. Boys higher on English preference were less physically active. On the contrary, boys born in the U.S. compared with immigrant boys spent more time in MVPA, which is consistent with Crespo et al’s finding that U.S.-born children had better cardiovascular fitness.\textsuperscript{45} Meanwhile, parents’ country of birth was not a significant predictor of MVPA for boys or girls. Even though these findings appear paradoxical, they warrant further investigation for at least 2 reasons.

First, English preference and country of birth of boys may have different acculturative implications. Related to this, Lee\textsuperscript{46} found that Korean Americans’ acculturation as a whole was inversely associated with perceived social pressure and positively associated with behavioral control beliefs regarding leisure-time physical activity. Lee’s findings suggest that future studies should extend the current study by testing whether English preference and country of birth have different effects on different psychosocial mediators such as attitude, perceived norm, self-efficacy, and so on.

Second, nonsignificant effects of parents’ country of birth (ie, proxy measure of acculturation of parents) implies that parents’ acculturation may not be associated with children’s physical activity. To verify the aforementioned inference, future studies should consider using comprehensive measure of acculturation, which capture diverse aspects of cultural adaptation (eg, cultural traditions, daily living habits, social affiliation, etc., in addition to language preference and generation status; see Zane and Mak\textsuperscript{47}), because country of birth may not effectively reflect parental cultural beliefs and parental practices regarding children’s physical activity.

**Interaction Between SES and Acculturation**

While PIR was not statistically significantly associated with MVPA in the current study, for boys it moderated the relationship between English preference and MVPA. That is, the negative effect of English preference on MVPA was amplified by improved SES (see Figure 1). For girls, the interaction between PIR and English preference was not significant.

Despite different mechanisms underlying Mexican American boys and girls MVPA behavior, the Hispanic paradox can at least partially be explained by the results of this study. For both boys and girls, PIR did not significantly contribute to physical activity participation. In addition, for boys only, PIR had an unfavorable moderation effect on the relationship between acculturation and MVPA. Therefore, this study suggests that low SES was not a risk factor for physical inactivity within the Mexican American adolescent population.

From a practical standpoint, health professionals should pay more attention to English speaking and immigrant Mexican American adolescents. In addition, Mexican American adolescents living with high SES should not be neglected as targets for physical activity promotion efforts.

**Limitations**

This study has several limitations. First, despite the generalizability of the findings from the NHANES, a national dataset, causal-effect inferences are limited due to the study’s cross-sectional survey design. Therefore, future studies need to consider longitudinal designs, which would allow for the possible discovery of an ordering effect. To accomplish this, researchers should practically consider secondary data analysis or cohort-sequential design,\textsuperscript{48} because acculturative changes may be detected over a longer time period, such as decades and generations.

Second, the domains of physical activity were not specified, which limits interpretation of the findings because leisure-time physical activity and nonleisure-time physical activity may have different etiologies. Related to this, acculturation has been shown to have a negative effect on nonleisure-time physical activity at least in Hispanic male adults.\textsuperscript{28,30} Therefore, future studies need to incorporate self-report measure that includes all domains of physical activity to supplement objective physical activity measurement.

In addition, the time of day and/or day of the week were not considered in this study (ie, only 4 valid days were required). Knowing the specific time and day that MVPA occurred (or didn’t occur) may provide further insights into the effects of acculturation and SES on during- and after-school activities, and weekday and weekend activities.

Third, the measure of SES solely relied on PIR. The relationship between SES, health behavior, and health may not be as simplistic as the current study implies where SES is defined as a multidimensional or multidomain construct. For example, in Hanson and Chen’s review of literature, empirical studies measured SES using neighborhood and community SES, parental occupation, parental education, subjective rating of SES, and/or family income.\textsuperscript{11} It is reasonable to infer that differently measured SES may differentially affect adolescents’ physical activity participation. For example,
having a lower family income can be a barrier against enrolling children in organized physical activities such as team sports and swimming lessons. Meanwhile, lower community SES may restrict adolescents’ unorganized physical activity participation, especially if neighborhood safety is a concern.49

Fourth, only proxy measures of acculturation (ie, generation status and English use), derived from the assumption that acculturation is a unidimensional construct, were available in NHANES. Even though our measures have been found to be valid in a previous study,50 multidimensional and multidomain measures of acculturation may have provided a more comprehensive view of the acculturation-MVPA relationship. For example, it is not possible to test whether and how interethnic relationships, a dimension of acculturation,51,52 are related to MVPA independently from other cultural preferences.

Lastly, when age, BMI, SES, and acculturation were included as predictors, the boys’ and girls’ model only explained 13% and 6% of MVPA variance, respectively. The hierarchical regression models tested in the current study did not include psychosocial predictors (eg, self-efficacy) that may more proximally predict MVPA compared with SES and acculturation. Indeed, personality, socioeconomic context, and culture have distal effects on a person’s motivation to engage in a health behavior.53 These imply that more comprehensive path models with the inclusion of psychosocial variables need to be tested for better understanding of Mexican American adolescents’ physical activity participation.

References


